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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,375	07/25/2000	Ming Hung	004635.P003	6587

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EXAMINER

ODLAND, DAVID E

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 10/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,375

Applicant(s)

HUNG ET AL.

Examiner

David Odland

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "...the receiver..." in line 4. There is a lack of antecedent basis for this limitation in the claim.

Claim 7 recites, "...a second MAC coupled to the receiver..." in line 4. It is unclear whether this receiver is the one coupled to the ARL, as recites in line 3 of claim 7, or the receiver coupled to the PQC, as recited in line 4 of claim 1, or if the claims are referring to the same receiver.

Claims 2-7 are rejected because they depend on claim 1.

Claim 14 recites that if the packet is to be broadcast then the method performs the step of "...storing a plurality of pointers in a broadcast queue corresponding to the next location in the main queue..." in lines 9 and 10. This limitation is confusing; it is unclear why the broadcast

Art Unit: 2662

queue is storing pointers that correspond to the main queue, since the main queue is used for unicast packets and not broadcast packets.

Claims 15 and 16 are also rejected because they depend on claim 14.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-16, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Harriman et al. (USPN 5,898,687), hereafter referred to as Harriman.

Referring to claims 1 and 8, Harriman discloses a network switch (a network switch (see column 2 lines 13-41 and figures 1 and 2)) comprising a first media access controller (MAC) (the switch comprises a CPU controller (see column 2 lines 13-41 and figures 1)) coupled to a plurality of ports (the CPU is coupled to a plurality of input and output ports (see column 2 lines 13-41 and items 102 and 104 in figures 1)), a transmitter coupled to the first MAC (an assembler is coupled to the CPU (see item 110 of figure 1)) and packet queuing control (PQC) coupled to the receiver (the receiver is coupled to a queuing control subsystem comprising an Input Translation Function (IFT), unicast queues and a multicast engine (see items 120,130 and 200 in figure 1)), wherein the PQC includes a main queue for storing information corresponding to one or more data packets to be transmitted from the network switch as unicast transactions (the queuing control subsystem comprises a unicast queue which is used for transmitting unicast

Art Unit: 2662

packets (see item 130 in figure 1)) and a broadcast queue, for storing information corresponding to one or to more data packets to be transmitted from the network switch as broadcast transactions (the queuing control subsystem also comprises a multicast queue which is used for transmitting multicast packets (see item 200 in figure 1)). Note: since the CPU is controls the network switch, it also controls the access of incoming data to the output ports and ultimately to a transmission medium, therefore it can be considered a Media Access Controller (MAC).

Referring to claims 2 and 9, Harriman discloses the system discussed above.

Furthermore, Harriman discloses that the broadcast queue comprises a plurality of port queues, wherein each of the plurality of port queues corresponds to one of the plurality of ports (the multicast queue comprises a plurality of queues that each correspond to one of the output ports (see item 240 in figure 2)).

Referring to claims 3 and 10, Harriman discloses the system discussed above.

Furthermore, Harriman discloses that the plurality of port queues comprise a first port queue for storing information corresponding to one or more data packets to be transmitted from a first of the plurality of ports (the multicast queue comprises a queue for each outgoing port (see the queue for port 0 in figure 2)) and a second port queue for storing information corresponding to one or more data packets to be transmitted from a second of the plurality of ports (the multicast queue comprises another queue for another one of the outgoing ports (see the queue for port 1 in figure 2)).

Referring to claims 4 and 11, Harriman discloses the system discussed above.

Furthermore, Harriman discloses that the information stored in the main queue and the broadcast queue includes a port number from which a data packet stored in a corresponding memory

Art Unit: 2662

location is to be transmitted (the unicast and multicast queues store the output port to which a corresponding packet, which is stored in a shared memory, will be transmitted from (see figures 1 and 2 and column 2 lines 13-41)).

Referring to claims 5 and 12, Harriman discloses the system discussed above.

Furthermore, Harriman discloses that the information stored in the main queue and the broadcast queue further includes a pointer to the next queue location from which a data packet stored in a corresponding memory location is to be transmitted (the unicast and multicast queues are implemented by a FIFO and they store pointers to the shared memory that stores the packet payloads that are next to be transmitted from the switch (see column 5 and 2 lines 13-41 and figures 1 and 2)).

Referring to claims 6 and 13, Harriman discloses the system discussed above.

Furthermore, Harriman discloses that the pointers to a next queue are stored in the main queue for unicast transactions (the unicast queue stores pointers to the shared memory that correspond to packet payloads that are to be unicast (see column 2 lines 13-41 and figure 1)) and stored in the plurality of broadcast port queues for broadcast transactions (the multicast queue stores pointers to the shared memory that correspond to packet payloads that are to be multicast (see column 2 lines 13-41 and figures 1 and 2)).

Referring to claim 7, Harriman discloses the system discussed above. Furthermore, Harriman discloses that the network switch further comprises address resolution logic (ARL) coupled to the PQC (the ITF performs address translations and is part of the queuing control subsystem (see figure 1)), a receiver coupled to the ARL (an extraction circuit and the input ports are coupled to the ITF (see figure 1)) and a second MAC coupled to the receiver (an Output

Art Unit: 2662

Translation Function (OTF) is also coupled to the receiver and performs control operations (see column 2 lines 13-41 and figure 1)). Note since the OTF is partly in control of giving the incoming data to access to the output ports and ultimately a transmission medium, it can also be considered a Media Access Controller (MAC).

Referring to claim 14, Harriman discloses a method comprising receiving a first data packet at a first input port coupled to a network switch (packets arrive at the input ports of the network switch (see figure 1)), determining whether the first data packet is to be transmitted from the network switch as a unicast transaction (a determination is made as to whether the packet is to be unicast or multicast (see column 2 lines 13-41 and figure 1)) and if so, storing a pointer in a main queue corresponding to the next location in the main queue corresponding to a memory location from which data is to be transmitted from the network switch (if the packet is to be unicast out of the switch, a pointer corresponding to the packet is stored in a unicast queue, wherein the pointer points to a location in a shared memory that stores the corresponding packet payload (see column 2 lines 13-41 and figure 1)), otherwise, storing a plurality of pointers in a broadcast queue corresponding to the next location in the main queue corresponding to a memory location from which data is to be transmitted from the network switch (if the packet is to be multicast then a plurality of pointers corresponding to the packets are stored in FIFO queues in the multicast queue (see figure 2)).

Referring to claim 15, Harriman discloses the system discussed above. Furthermore, Harriman discloses that the process of storing a plurality of transaction pointers corresponding to the first memory location in a broadcast queue comprises storing the pointer in a first port queue in the broadcast queue (the pointer is stored in a queue for port number 0 (see figure 2)), wherein

Art Unit: 2662

the first port queue corresponds to a first output port coupled to the network switch (the port 0 queue corresponds to output port 0 of the switch (see figures 1 and 2)) and storing the pointer in a second port queue in the broadcast queue (the pointer is also stored in a queue for port number 1(see figure 2)), wherein the second port queue corresponds to a second output port coupled to the network switch (the port 1 queue corresponds to output port 1 of the switch (see figures 1 and 2)).

Referring to claim 16, Harriman discloses the system discussed above. Furthermore, Harriman discloses transmitting the first data packet from the network switch via the first output port (the multicast packet is output from port 0 (see figures 1 and 2)) and transmitting the first data packet from the network switch via the second output port (the multicast packet is also output from the port 1 (see figures 1 and 2)).

Conclusion

6. The following prior art, which is made of record and not relied upon, is considered pertinent to applicant's disclosure:

- a. U.S. Patent Number 5684797 to Aznar et al.
- b. U.S. Patent Number 5687324 to Green et al.
- c. U.S. Patent Number 5903564 to Ganmukhi et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland, who can be reached at (703) 305-3231 on Monday – Friday during the hours of 8am to 5pm.

Art Unit: 2662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (703) 305-4744. The fax number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, who can be reached at (703) 305-4750.

deo

September 30, 2003

A handwritten signature in black ink, appearing to be 'H. Kizou', written over a horizontal line.

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600